

APPENDIX B

Figures

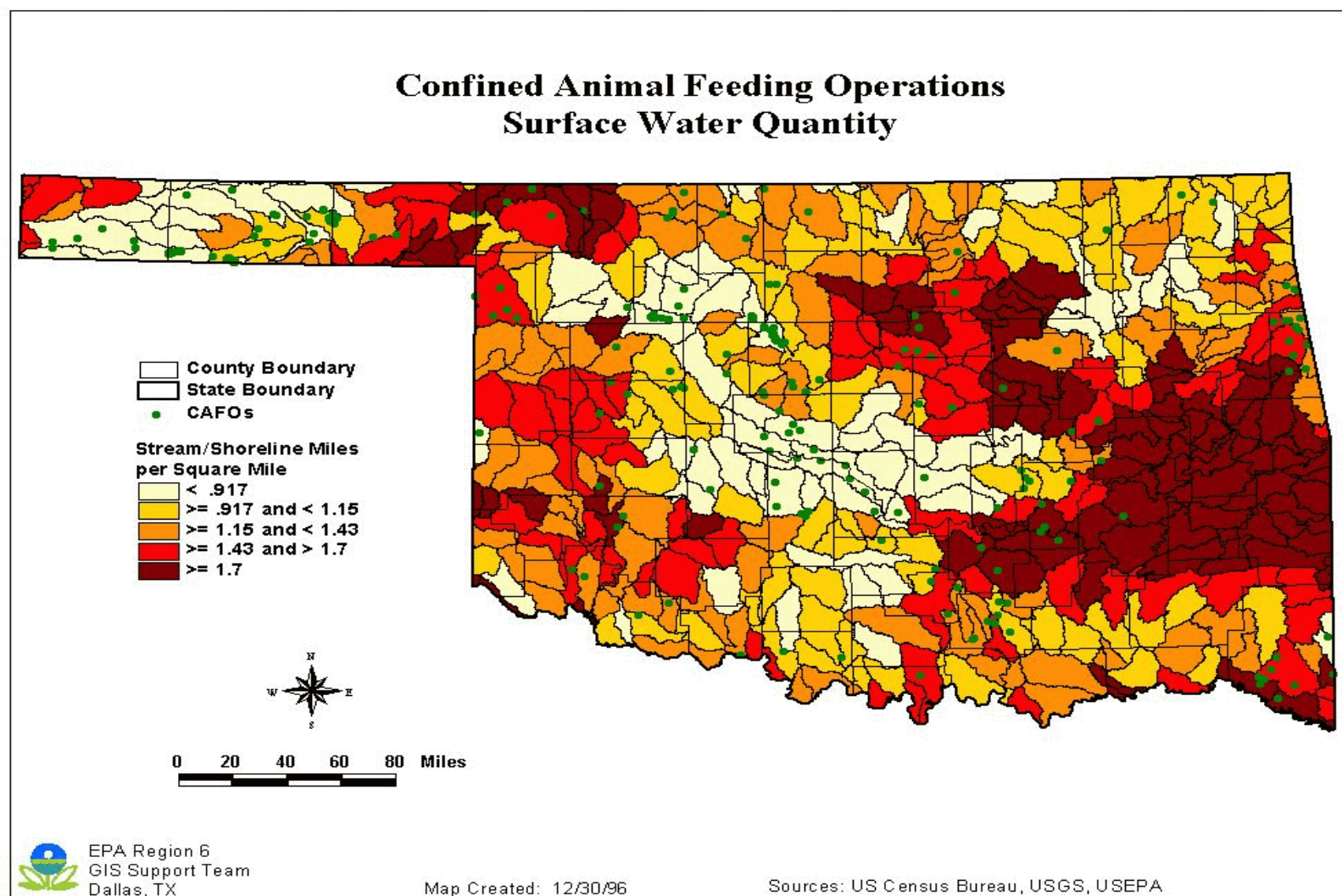


Figure B-1. Surface Water Quantity criterion scores for Oklahoma.

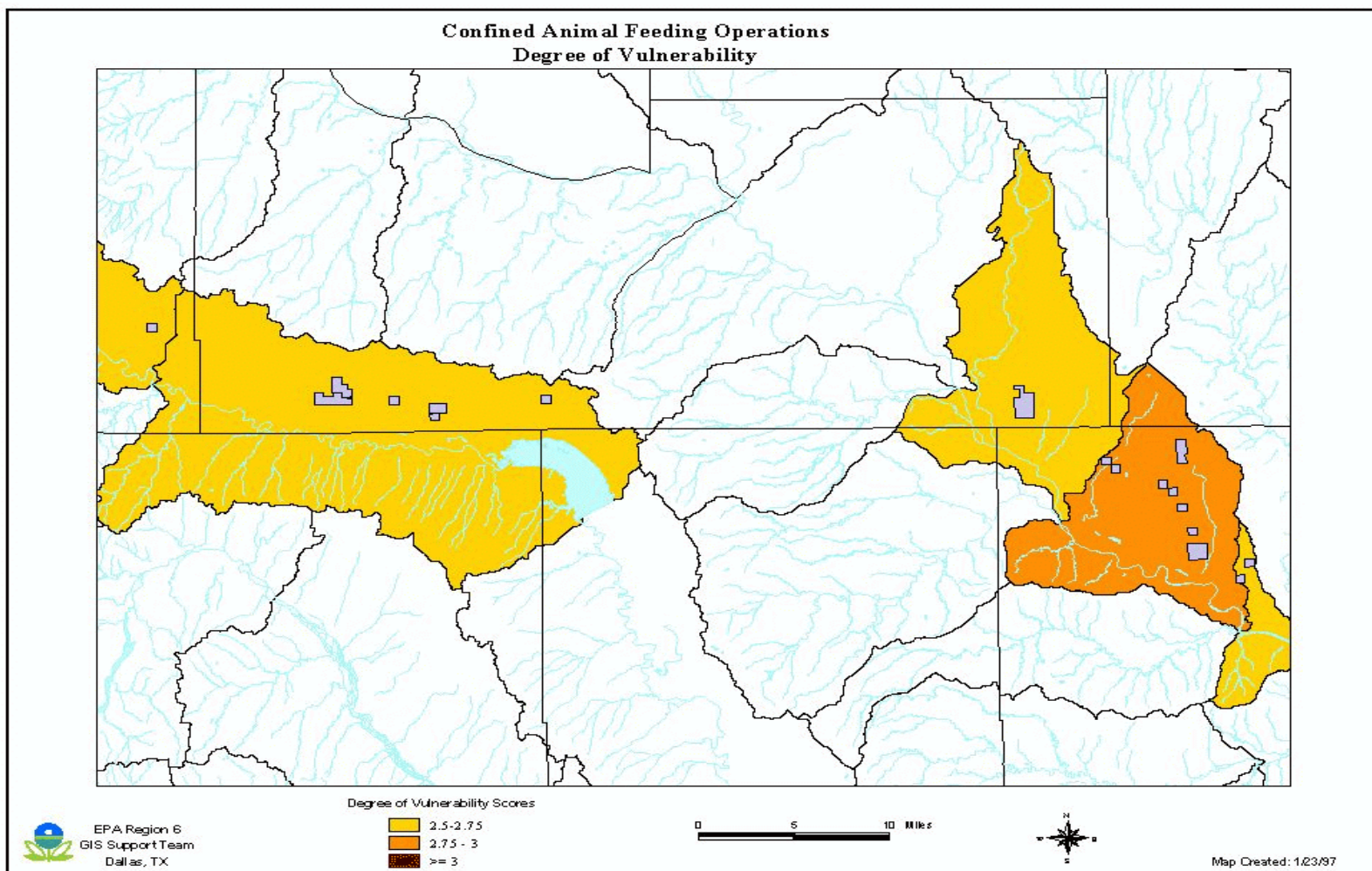


Figure B-2. Degree of Vulnerability for five subwatersheds in Oklahoma. Individual swine feedlots (CAFOs) are shown in gray.

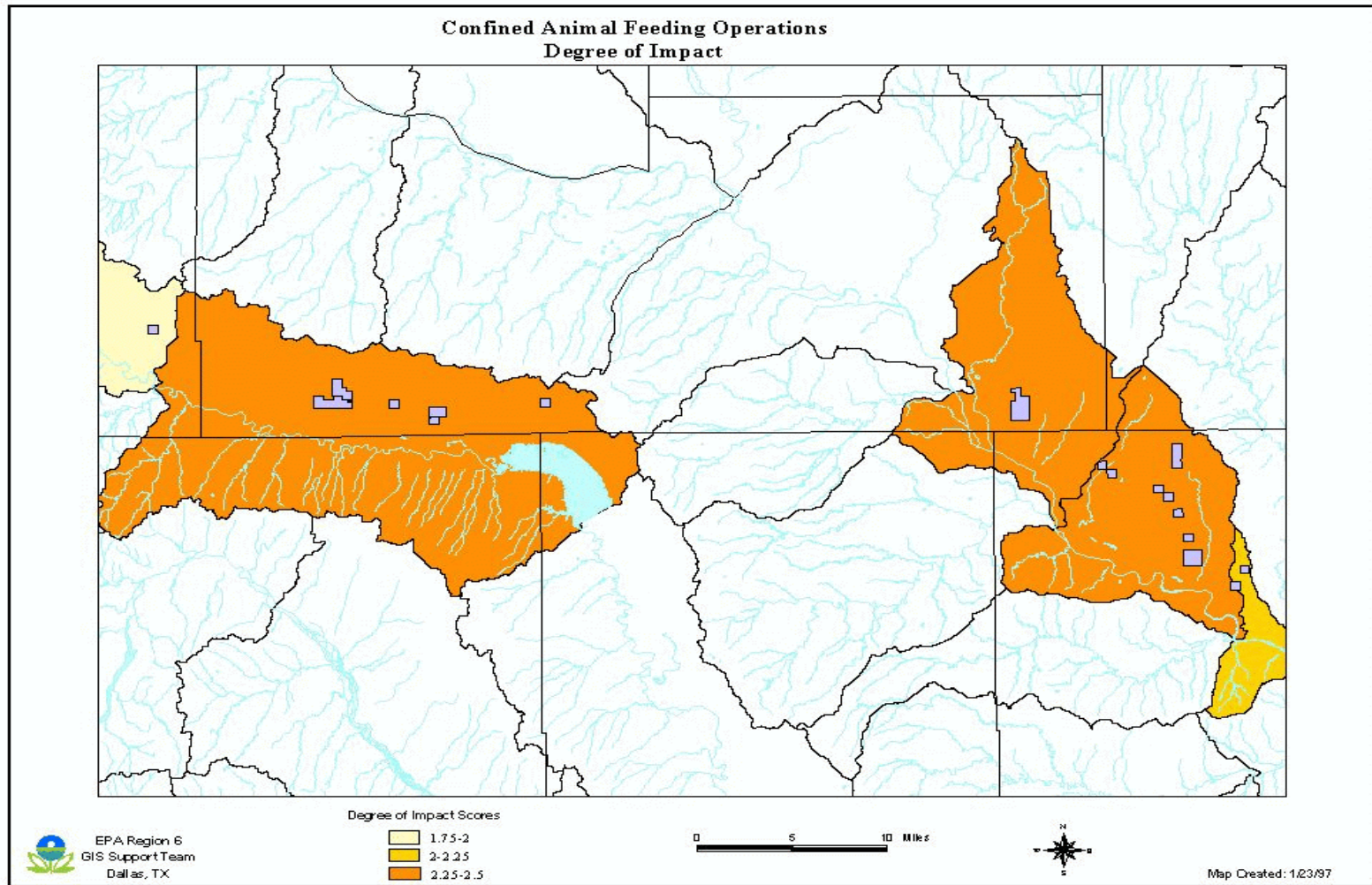


Figure B-3. Degree of Impact for five subwatersheds in Oklahoma. Individual swine feedlots (CAFOs) are shown in gray.

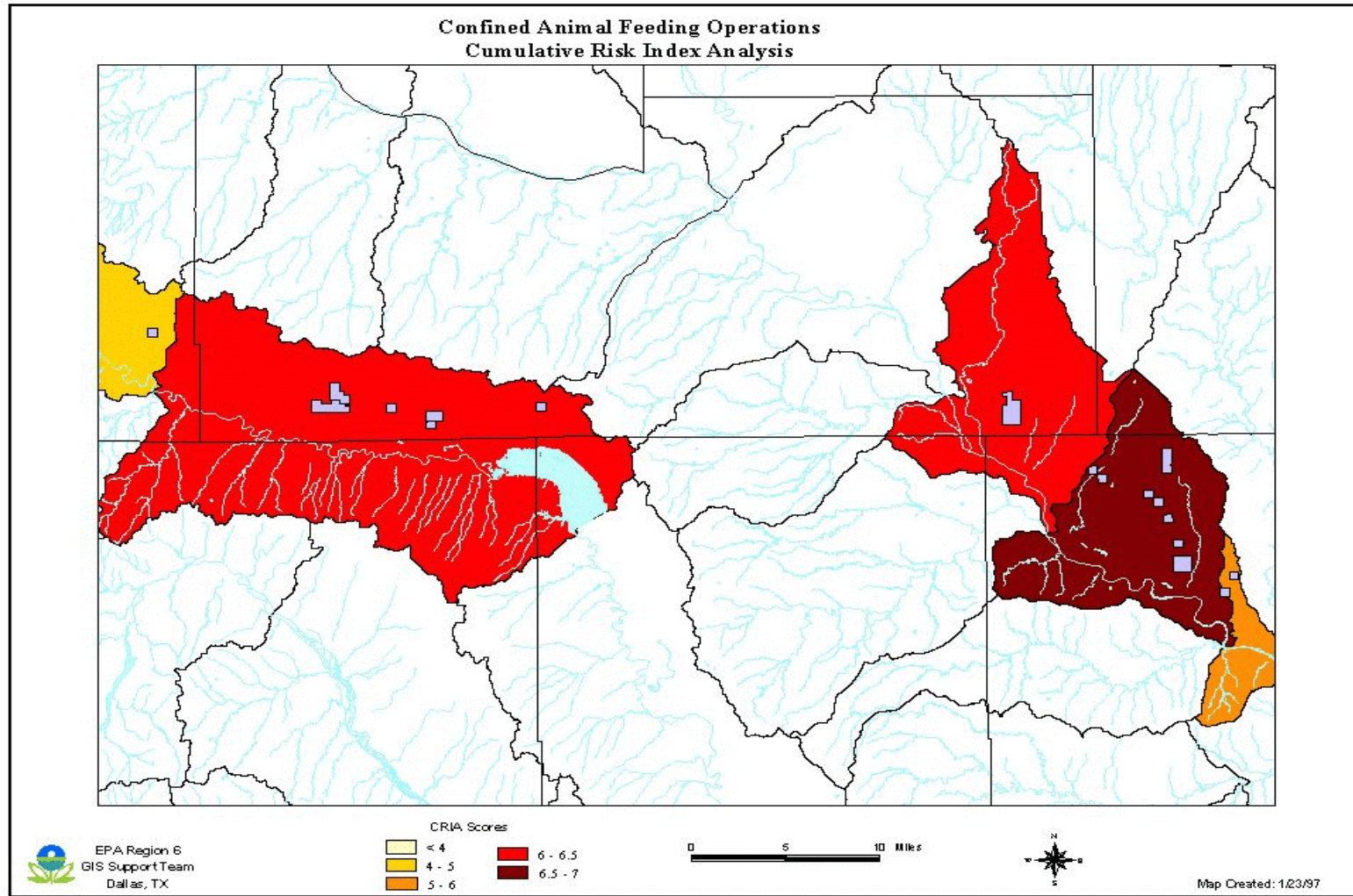


Figure B-4. Degree of Impact for five subwatersheds in Oklahoma. Individual swine feedlots (CAFOs) are shown in gray.

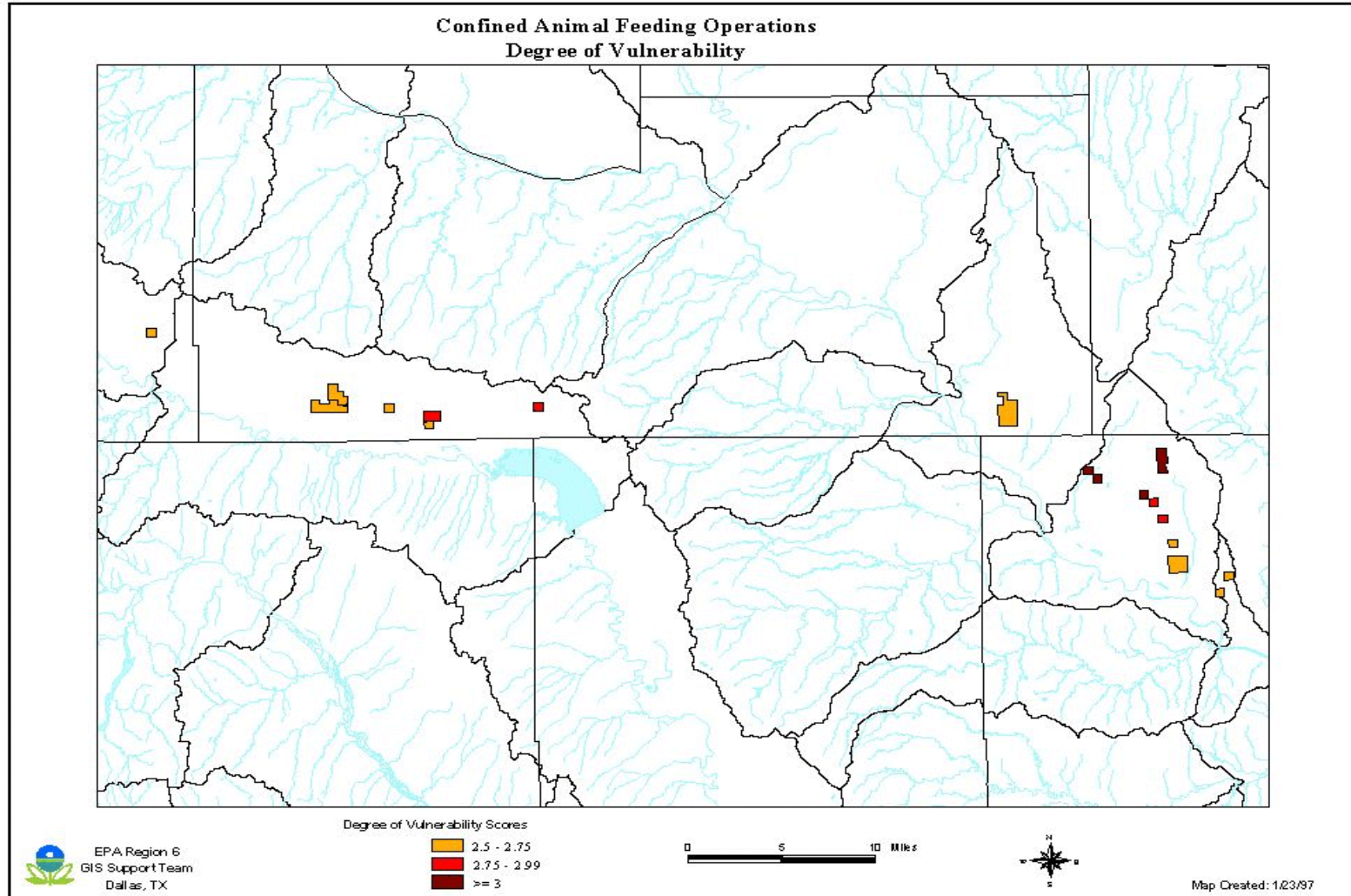


Figure B-5. Degree of Vulnerability for each swine feedlot (CAFO) facility in five subwatersheds in Oklahoma.

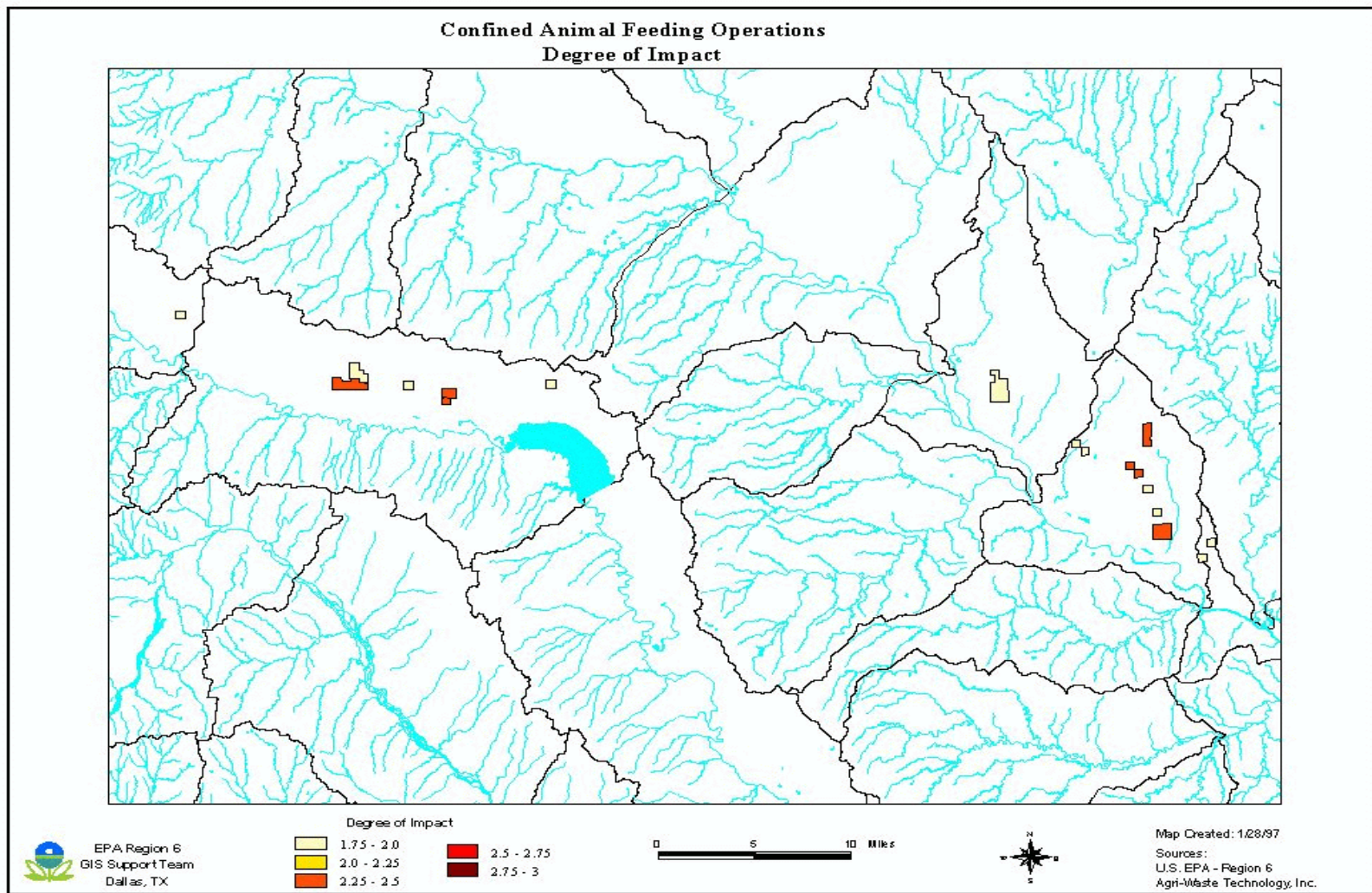


Figure B-6. Degree of Impact for each swine feedlot (CAFO) facility in five subwatersheds in Oklahoma.

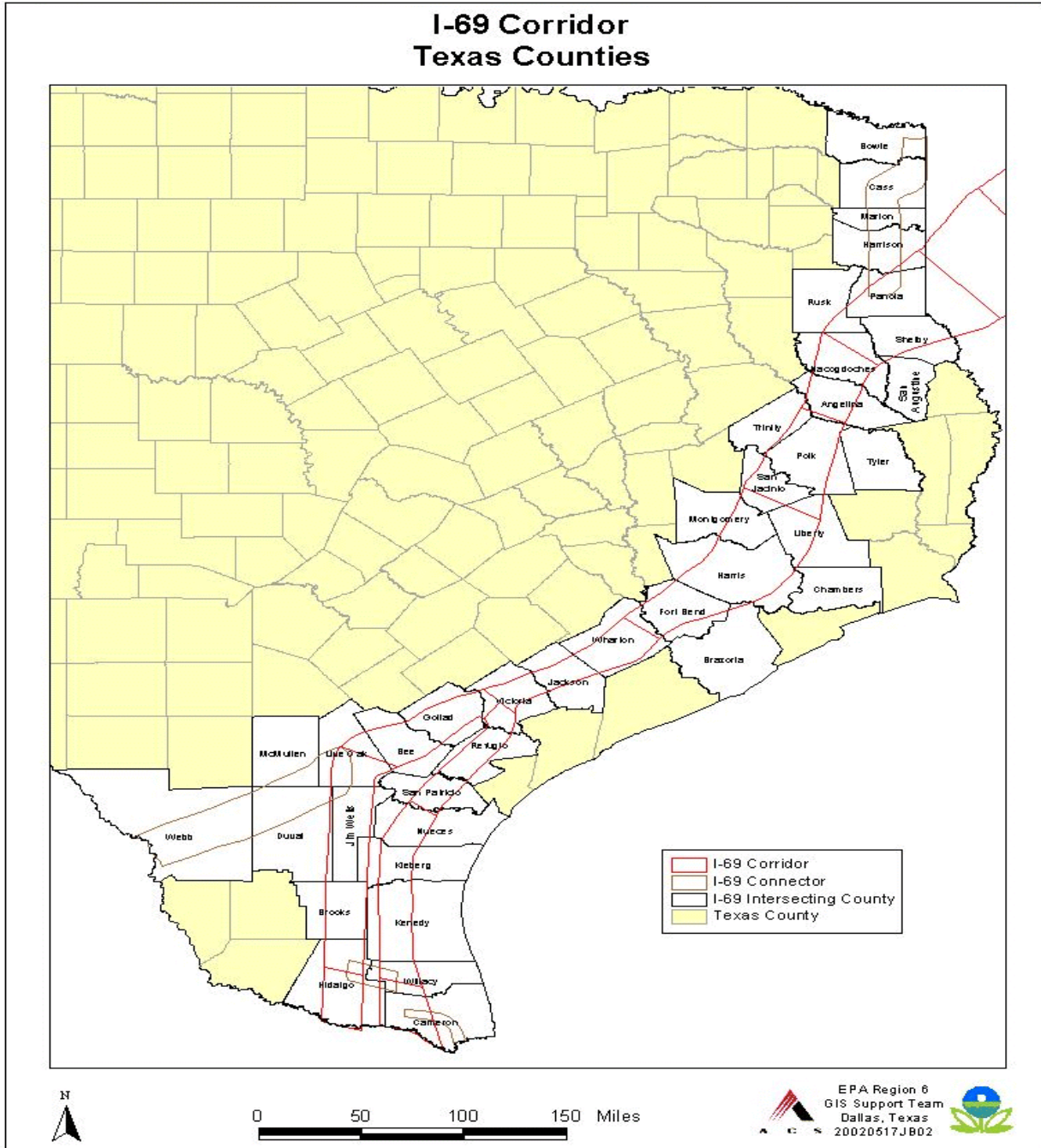


Figure B-7. IH-69, NAFTA Highway Corridor in Texas.

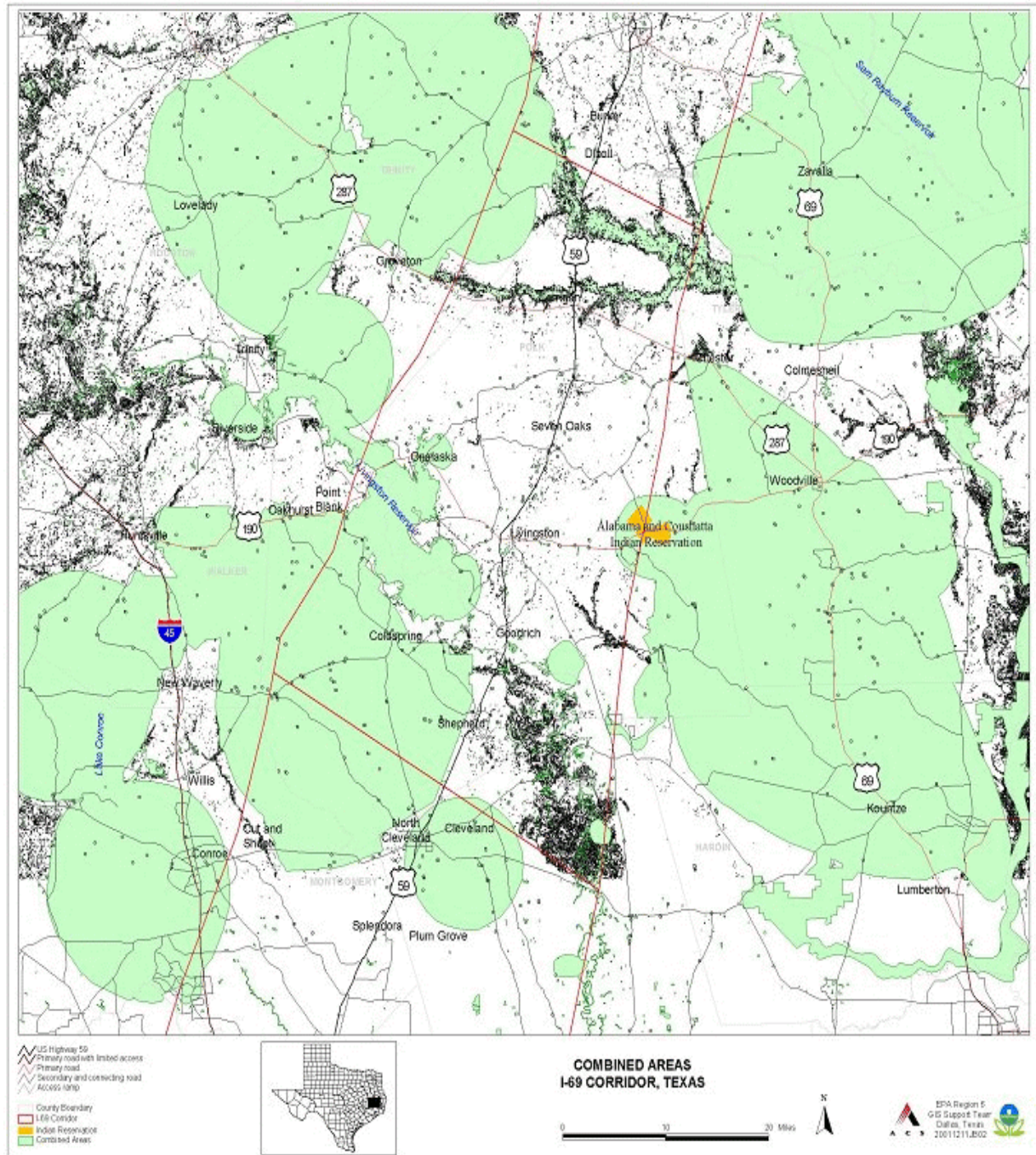


Figure B-8. GIS overlay of sensitive resources in IH69 Corridor SIU 3. Sensitive resources include threatened and endangered species, wetlands, cultural resources, managed lands (e.g., national and state forests, parks, and refuges).

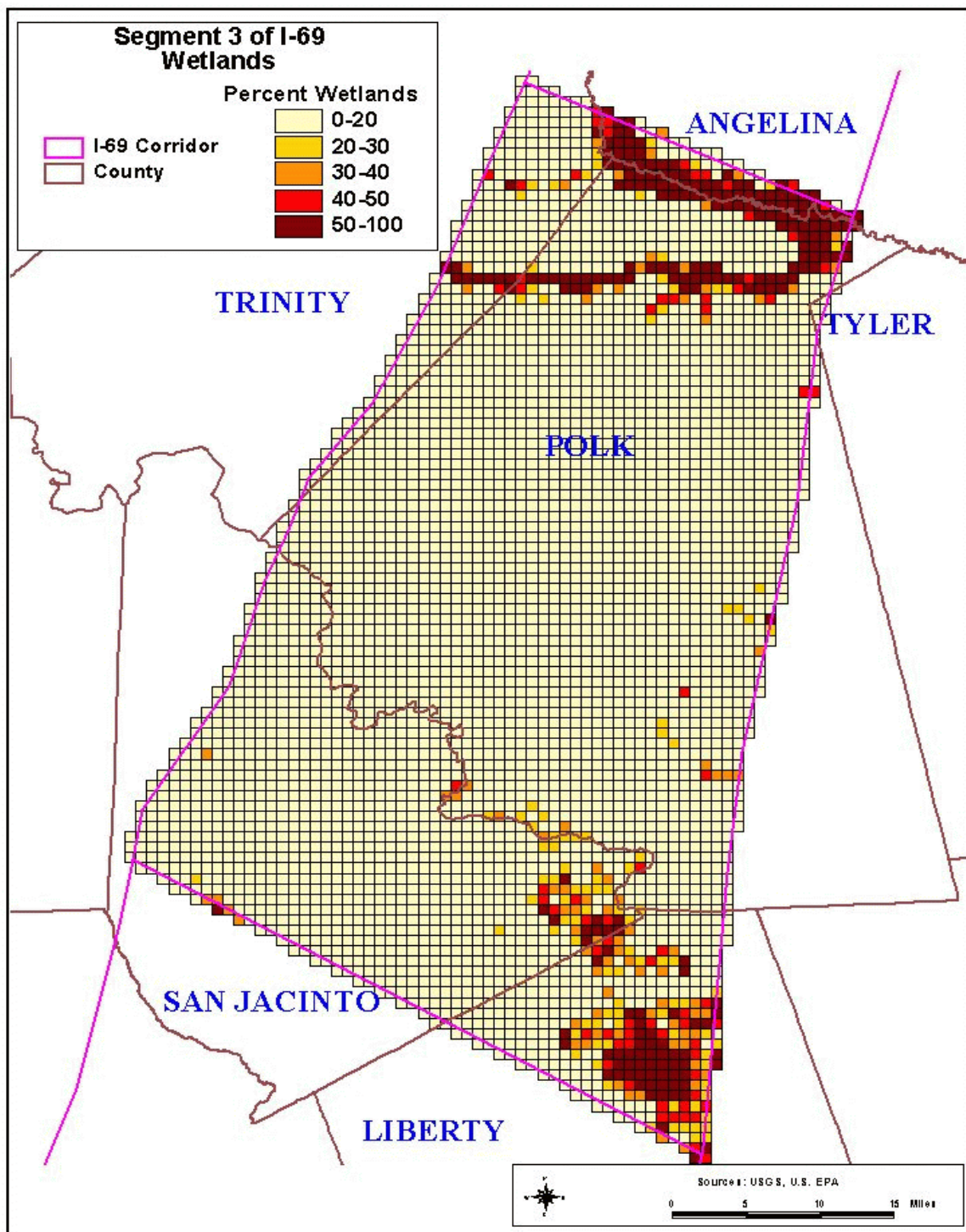


Figure B-9. Values calculated for 1 km blocks within SIU 3 for the wetlands criterion.

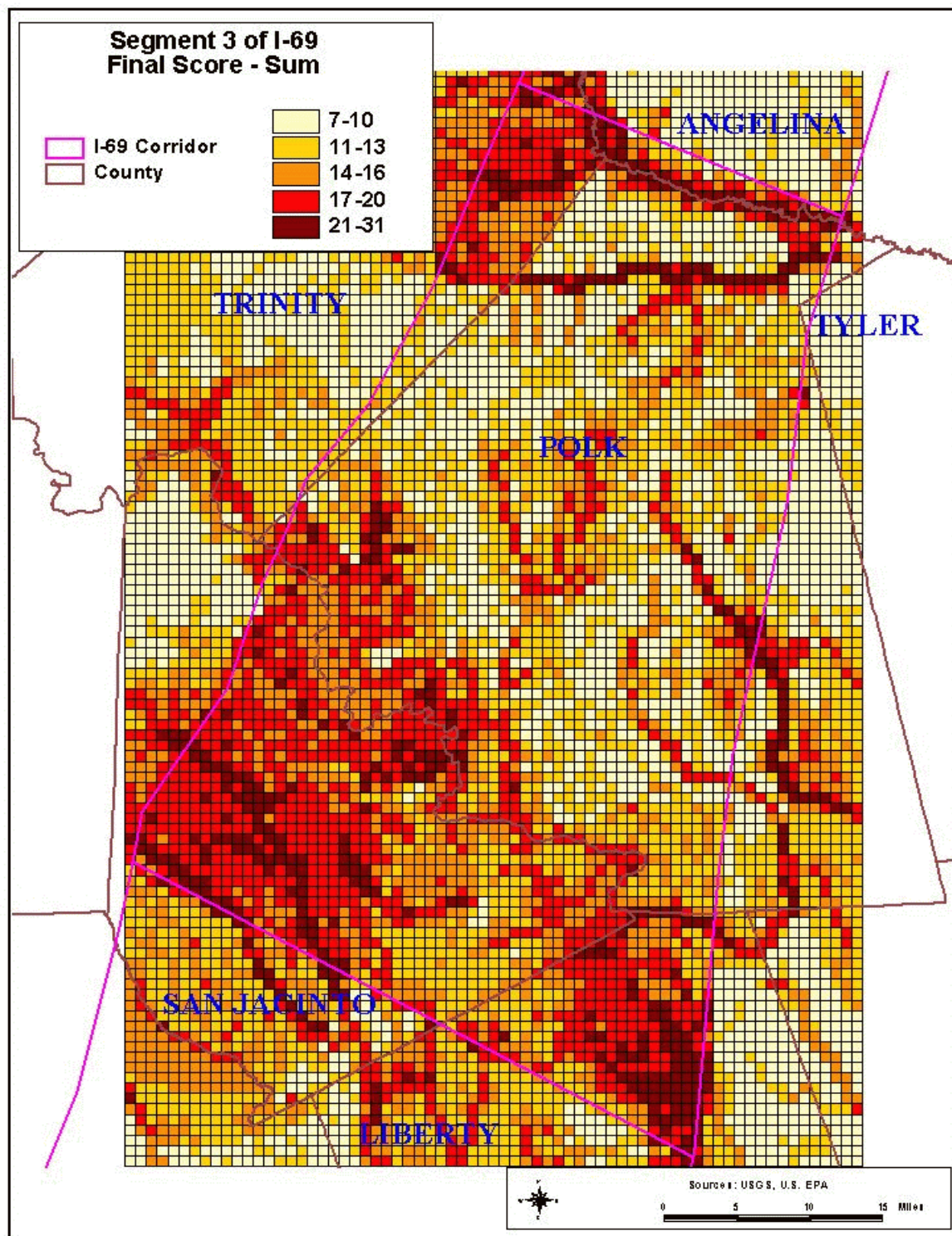


Figure B-10. Summation of criterion scores calculated for 1 km blocks within SIU 3.

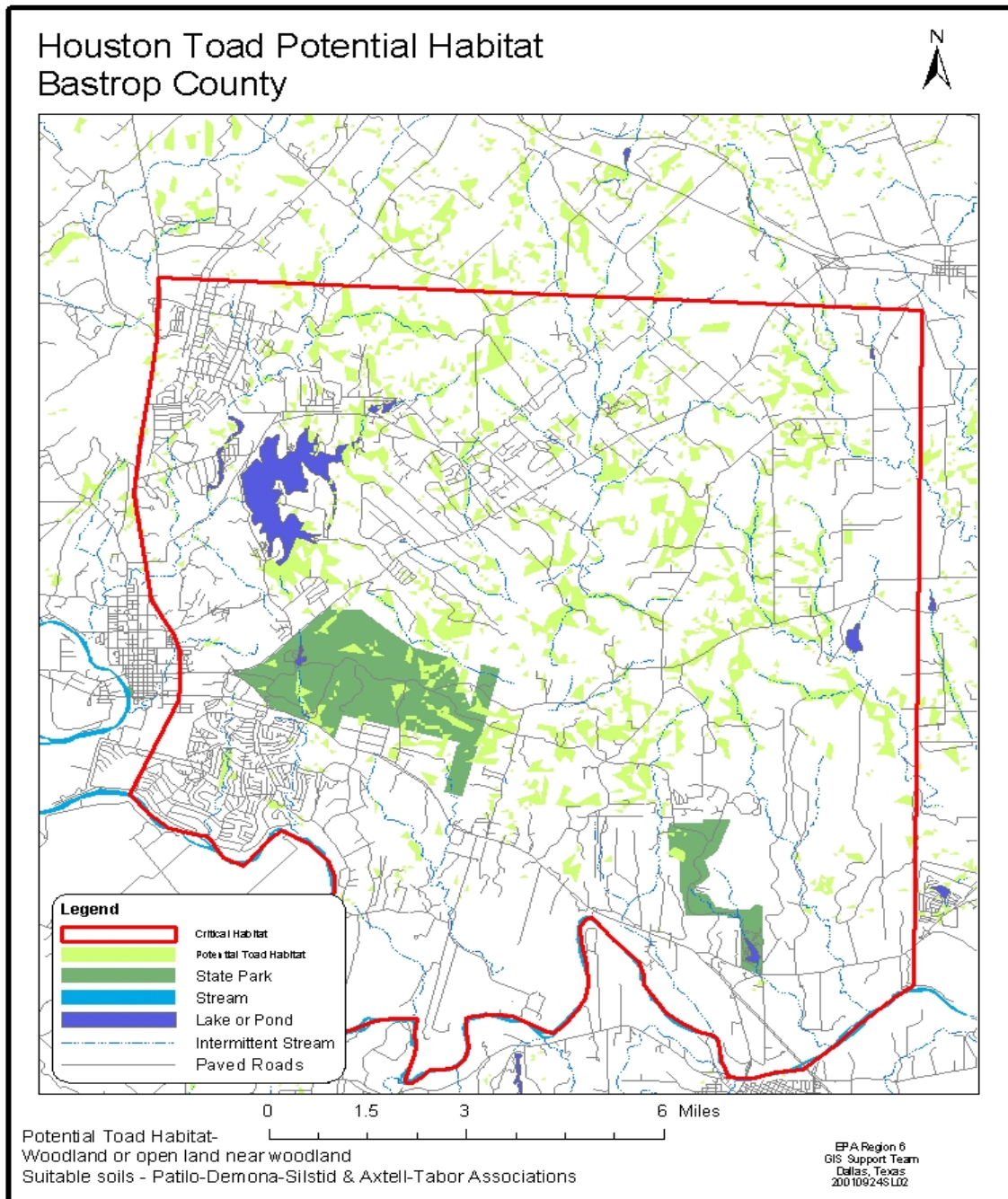


Figure B-11. Potential habitat areas for the Houston toad based on information on soils and vegetation types.

Figure B-12. Sample letter explaining the GISST output.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200

DALLAS TEXAS 75202-2733

RE: Comprehensive Conservation Plan/Environmental Assessment for the Aransas National Wildlife Refuge Complex

Dear:

The Environmental Protection Agency (EPA) has reviewed the information concerning the Comprehensive Conservation Plan/Environmental Assessment for the Aransas National Wildlife Refuge (NWR) Complex and included the results of our GIS Screening Tool (GISST). The output of this GIS tool is provided to assist the US Fish and Wildlife Service with the Environmental Assessment (EA) of the area. The GISST is a screening level assessment tool only and does not replace the need for field investigations, it merely points out what could exist in the project area.

The GISST uses GIS coverages and Hydrologic Unit Codes (HUC) for watersheds, then uses a decision structure to score criteria for a wide variety of concerns. The scores for each criterion range from 1, lowest environmental concern, to 5, highest potential concern or vulnerability. This scoring system is performed with a 2 mile buffer around each NWR unit area and at 4 miles around each NWR unit. These 2 buffers should give you a sense of direct effects (2 mile buffer) and indirect effects (4 mile buffer). Further details on the nature of the criteria can be found at www.epa.gov/earth1r6/6en/xp/cria.pdf. In order to keep this letter to a manageable size, we have not included specific details of this tool (~30 page document), but we have enclosed a help sheet.

Additionally, EPA is concerned that two issues be adequately assessed in the EA: 1) cumulative effects and 2) environmental justice. Several EAs that EPA Region 6 has reviewed in the past have not adequately addressed these two concerns. Please feel free to contact us if you need assistance with these areas in the preparation of your NEPA documents.

Thank you for this opportunity to comment. If there are any questions please contact Dr. Sharon L. Osowski of my staff at osowski.sharon@epa.gov or (214) 665-7506.

GIS SCREENING TOOL (GISST) HELP SHEET

The enclosed GISST printout includes the following descriptions:

Column 1: Unique factor/criterion identifier.

Column 2-4: Criterion values/scores

Column 5: Criteria descriptions

Rows 1-8: Location information

Rows 9-21: ANWR subunits and subwatershed level criteria

Rows 22-43: Environmental vulnerability criteria for 4 miles around location project

Rows 44-68: Socio-economic criteria for 4 miles around project

Rows 69-78: Toxicity criteria for 4 miles around project

Rows 79-100: Environmental vulnerability criteria for 0.5 miles around location project

Rows 101-125: Socio-economic criteria for 0.5 miles around project

Rows 126-135: Toxicity criteria for 0.5 miles around project

Other information:

Many of the criterion identifiers are paired; 1) one identifier for the actual value as determined by GIS and 2) one identifier for the score that the value received under the GISST scoring system. For example, Row 9 shows the surface water use identifier (SURWTRUSE) and shows that 18.3% of streams are meeting their designated use within this particular subwatershed (based on the USGS HUC system). One interpretation of this is that the majority of streams (81.7%) in this subwatershed are not meeting their designated use under Clean Water Act Section 303d. The identifier SURWTRUSES (Row 10) shows the score or ranking of this surface water use value under GISST. In this example, surface water use scores the highest value, 5, indicating a high level of vulnerability and concern to EPA. Criteria are ranked using a 1 to 5 scale, with 1 representing low concern and 5 representing high concern. Scores of “4” or “5” are highlighted on the enclosed table and should be investigated further.

Socioeconomic criteria can be used as a starting point to assess environmental justice issues and to prepare communications strategies for scoping meetings or public meetings (e.g., number of children, high school education, English ability, etc.). Toxicity criteria can be used as a starting point to determine whether pollution sources may impact the proposed project site. Environmental criteria can be used as a starting point to determine and prioritize traditional “NEPA” issues.

The following scored “high” for the proposed site and should be further investigated:

- Rainfall. The Rancho and Blackjack Units receive more rainfall on average than the Lamar Unit. Rainfall is important in calculating potential runoff and other pollution events.
- Average surface/stream flow. The Blackjack Unit and Lamar Units may have low

surface water or stream flow. The less average stream flow the greater the concern for contaminant loading in a water body. This criteria is evaluated with data addressing the potential for pollutants being released to streams (see toxicity criteria).

- Aquifer geology score. Based on the geological formations, aquifers or groundwater are likely to be present for all three NWR units.
- Percent surface water (2 and 4 mile buffers). This criterion indicated that there is a high proportion of surface water in all three Units within 4 miles and within 2 miles of the Rancho and Blackjack Units.
- Percent Wildlife habitat (2 and 4 mile buffers). Using land cover GIS coverages, there is a high percentage of habitat that could potentially be used by wildlife (wetlands, rangelands, forest lands, woodlands, and/or bottomlands). This is to be expected for these locations.
- Land Use ranking (2 and 4 mile buffers). Each land use type in the GIS coverage is judged as to wildlife habitat quality. A score of "5" indicates wildlife habitat defined as rangeland, wetlands, forest lands, woodlands, herbaceous uplands, shrublands, open water. This is to be expected for these locations.
- Percent Wetlands (2 mile buffer). The Rancho Unit has a high percentage of wetland areas based on the GIS land cover coverage.
- Percent area within 100 year floodplain (2 and 4 mile buffer). All three Units are likely to reside in the 100 year floodplain (2 mi).
- Percent area within 500 year floodplain (2 and 4 mile buffer). This indicates that a high proportion of each ANWR unit occurs in the 500 year floodplain.
- Road density (2 mile buffer). (Lamar Unit only) High road density is often an indicator of habitat fragmentation, potential traffic congestion, or safety issues.
- Number of other sites near project area (4 mile buffer). These are other industries, pollution sources, or protected lands that could cumulatively affect the Blackjack Unit.

NOTE: GISST is a screening-level analysis only and is not a substitute for field investigations or ground verification of existing data.